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10/783,645

02/20/2004

Daniel L. Pleasant

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EXAMINER

PIERRE LOUIS, ANDRE

ART UNIT

PAPER NUMBER

2123

NOTIFICATION DATE

DELIVERY MODE

05/10/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

### Office Action Summary

**Application No.**

10/783,645

**Applicant(s)**

PLEASANT, DANIEL L.

**Examiner**

ANDRE PIERRE LOUIS

**Art Unit**

2123

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 8-10 and 12 is/are allowed.
- 6) ☒ Claim(s) 1-7, 11 and 13-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The amendment filed on 1/29/2010 has been received and fully considered.
2. Claims 1-16 remain pending and are presented for examination.
3. Regarding the rejection under 35 USC 112, the Examiner withdraws the rejection in view of the amendment.
4. As per the claims' objection, the Examiner withdraws the objection in view of the amendment.

**Response to Arguments**

5. Applicant's arguments filed 1/29/2010 have been fully considered but they are not persuasive.

5.1 Applicant argues that the combination of the cited references do not teach the variation of values in the test in accordance with expected probability distribution, the Examiner respectfully disagrees and asserts that Piratelli-Filho does teach the variation of values in the measurement in accordance with an expected probability distribution to generate random numbers (*page 1 (upper right first paragraph; and section 2.2)*). As per the arguments to claim 5, the Examiner, again, as pointed out with regards to claim 1, respectfully notes Jamneala in combination with Piratelli-Filho does provide the variation of parameters during their uncertainty measurement (*see Jamneala fig.5, col.5 lines 66-col.6 line 62*) wherein a plurality of uncertainties is generated in accordance the expected probability distribution and according to the specified range of variability (*see Piratelli-Filho page 1 (upper right first paragraph); and section 2.2*); although a small portion of the prior art was cited in the rejection, the Examiner

respectfully notes that Applicant should consider the cited references cited entirely; however the ground of rejection below clearly support the Examiner's position in rejecting the instant claims.

5.2 As per Applicant's arguments regarding the combination of the cited references and that the references are not sufficient to render claims prima facie obvious, is acknowledged. However, the Examiner notes that the ground of rejection below clearly shows a complete mapping of the cited prior art to the instant claims addressing all claims limitations. In the above ground of rejection, the Examiner points to specific portion of the references for reasons/motivation to combine the references and that a prima facie has clearly been established. Therefore the Examiner has properly rejection the claims in accordance with the practices and procedures set forth in the MPEP.

**Claim Rejections - 35 USC § 103**

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**6.0 Claims 1-4, 6-7, 11, and 13-16 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Jamneala et al. (U.S. Patent No. 6,804,807), in view of Piratelli-Filho et al. (Uncertainty Evaluation in small angle Calibration using ISO GUM Approach and Monte Carlo Method, June 2003).

6.1 In considering the independent claim 1, Jamneala et al. substantially teaches a method of determining a measurement uncertainty of a selected parameter of a device under test (DUT) when measured by a test system, the combination of said test system and said DUT

comprising a plurality of components, each component being characterized by one of a corresponding plurality of values, each value varying in accordance with one of a corresponding plurality of expected probability distributions, said method comprising: providing a test system model for the combination of said test system and said DUT, said model having a plurality of model elements that affect said measurement uncertainty, each model element representing one of said plurality of components and being characterized by a corresponding one of said plurality of values (*fig.1, 5 (502), col.5 line 66-col.6 line 65, col.7 lines 63-64*); entering the test system model into a simulator (*fig.5 (504), col.7 lines 63-65*); running a sufficient number of iterations of the test system model on the simulator while randomly varying each of a first portion of the plurality of model element values within said corresponding probability distributions to produce a statistically significant number of results of the selected parameter (*fig.5 (510-512), col.6 lines 51-58 & col.8 lines 12-23*); and evaluating the results to determine the measurement uncertainty of the selected parameter of said DUT (*fig.5 (518), col.8 lines 12-23*). Although Jamneala et al. does not specifically state the exact term measurement uncertainty and the variation in accordance with a probability distribution, he teaches simulating the system to obtain a plurality of simulation results and match them with measured values (*see fig.5*), thereby obtaining a plurality of measurement of the uncertainty (*also see col.6 lines 40-62*) and would clearly be understood by one of ordinary skilled in the art. Nevertheless, Piratelli-Filho et al. substantially teaches a method for determining and evaluating measurement uncertainty using ISO GUM and Monte Carlo method (*see title*), including obtaining measurement at multiple angles (*see further pgs.2-4*), in accordance with an expected probability distribution and a specified range of variation (*see section 2.2*). Piratelli-Filho et al. and Jamneala et al. are analogous art because they

are from the same field of endeavor and that the method teaches by Piratelli-Filho et al. is similar to that of Jamneala et al. Therefore, it would have been obvious to one ordinary skilled in the art at the time of the applicant invention to combine the uncertainty evaluation method of Piratelli-Filho et al. with the method of Jamneala et al. because Piratelli-Filho et al. teaches obtaining expanded uncertainty results which proved simplified analysis (*see abstract*).

6.2 With regards to claim 2, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach that the simulator uses a harmonic balance simulation engine to produce the results (*see Jamneala et al. col.6 lines 7-17 (ADS simulator); also see Piratelli-Filho et al. section 2.2-3*).

6.3 As per claims 3, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach that the simulator uses a time-domain simulation engine to produce the results (*see Jamneala et al. col.6 lines 7-17 (ADS simulator); also see Piratelli-Filho et al. section 2.2-3*).

6.4 With regards to claim 4, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach that the simulator uses a linear S-parameter simulation engine to produce the results (*see Jamneala et al. col.6 lines 7-17 (ADS simulator); also see Piratelli-Filho et al. section 2.2-3*).

6.5 Regarding claim 6, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach that the plurality of uncertainty terms includes a test instrument uncertainty term for a test instrument in the test system (*see Jamneala et al. fig.1; also see Piratelli-Filho et al. pg.1-4*).

6.6 As per claim 7, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach that the test instrument uncertainty term is selected from the group consisting of a temperature drift uncertainty term, an aging drift uncertainty term, an accuracy uncertainty term, and a repeatability uncertainty term (*see Piratelli-Filho et al. pg. 1-4*).

6.7 Regarding claim 11, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach that the test system model includes a test instrument as a device under test (*see Jamneala et al. fig.1, col.1 lines 60-64, col.3 line 50-col.4 line 6; also see Piratelli-Filho et al. pg. 1-4*).

6.8 With regards to claim 13, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach the step of running occurs at a first operating condition and further comprising steps of: running a sufficient number of iterations of the test system model on the simulator at a second operating condition while randomly varying each of the first portion of the plurality of uncertainty terms within probability distributions to produce a statistically significant number of second results of the selected parameter (*see Jamneala et al. fig.2B-5, col.6 line 41-col.8 line 23; also see Piratelli-Filho et al. pg. 1-4*); and evaluating the second results to determine a second measurement uncertainty of the selected parameter (*see Jamneala et al. fig.2B-5, col.6 line 41-col.8 line 23; also see Piratelli-Filho et al. pg. 1-4*).

6.9 As per claim 14, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach the step of running is done using a first type of simulation engine and further comprising steps of: running a second sufficient number of iterations of the test system model on the simulator using a second type of simulation engine while randomly

varying each of the first portion of the plurality of uncertainty terms within probability distributions to produce a statistically significant number of second results of a second selected parameter (*see Jamneala et al. fig.2B-5, col.6 line 41-col.8 line 23; also see Piratelli-Filho et al. pg.1-4*); and evaluating the second results to determine a second measurement uncertainty of the second selected parameter (*see Jamneala et al. fig.2B-5, col.6 line 41-col.8 line 23; also see Piratelli-Filho et al. pg.1-4*).

6.10 Regarding claim 15, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach the step of developing a computer-readable library of test system components with uncertainty terms, and wherein the step of entering the test system model into the simulator includes loading uncertainty terms associated with the test system components from the computer-readable library (*col.8 lines 35-45*).

6.11 As per claim 16, the combined teachings of Jamneala et al. and Piratelli-Filho et al. substantially teach that the step of providing the test system model includes automatically generating system specifications (*fig.5, col.8 lines 12-23; also see Piratelli-Filho et al. pg.1-4*).

**7. Claim 5 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Jamneala et al. (U.S. Patent No. 6,804,807), in view of Piratelli-Filho et al. (Uncertainty Evaluation in small angle Calibration using ISO GUM Approach and Monte Carlo Method, June 2003), and further in view of Helisto et al. (Measurement Uncertainty in the 1/f noise region: Zener Voltage Standards, IEEE 2000).

7.1 Regarding claim 5, Jamneala et al., as modified by Piratelli-Filho et al. and applied to claims 1-4, and 6-7, 11, 13-16 above, teaches most of the instant invention, including



the variation of parameter from one element to another (*see Jamneala fig.5, col.5 lines 66-col.6 line 62 and Piratelli-Filho pgs.2-4*). However, they do not clearly teach that the plurality of probability distributions includes a noise term. Helisto et al. substantially teaches a Measurement Uncertainty in the 1/f noise region and the variation of frequency and time with his simulation to obtain a plurality of measurement (*see title, pg.401-402*). Piratelli-Filho et al., Jamneala et al., and Helisto et al. are analogous art because they are from the same field of endeavor and that the method teaches by Helisto et al. is similar to that of Jamneala et al. and Piratelli-Filho et al. Therefore, it would have been obvious to one ordinary skilled in the art at the time of the applicant invention to combine the uncertainty measurement method of Helisto et al. with the method of Jamneala et al. and the uncertainty evaluation method of Piratelli-Filho et al. because Helisto et al. teaches a development that enable the measurements down to the fundamental noise limit of metrological devices (*see pg.402*).

#### **Allowable Subject Matter**

8. Claims 8-10 and 12 are allowed.

8.1 The following is an examiner's statement of reasons for allowance:

8.2 In view of the Appeal Brief filed on 11/08/2007, the Reply Brief filed on 3/13/2008, and the **Board of Patent Appeals and Interferences (BPAI)** decision of 6/11/2009, the rejections with regards to the claims 8-10, and 12 are withdrawn and claims 8-10, and 12 are allowed.

8.3 Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the

issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9.1 Sola et al (US Patent No 6,178,389) teaches a method for determining the measuring uncertainty of a coordinate measure device.

10. Claims 1-7, 11, 13-16 are rejected and claims 8-10, 12 are allowed. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre Pierre-Louis whose telephone number is 571-272-8636. The examiner can normally be reached on Mon-Fri, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. P. L/  
Examiner, Art Unit 2123

May 4, 2010

/Paul L Rodriguez/

Supervisory Patent Examiner, Art Unit 2123